

# **Pacific Coastal Salmon Recovery Fund**

## **Performance Goals, Measures and Reporting Framework**

### **March 2006**

## **1. INTRODUCTION**

Congress established the Pacific Coastal Salmon Recovery Fund (PCSRF) to contribute to the restoration and conservation of Pacific salmon and steelhead populations and their habitat. The States of Washington, Oregon, California, Idaho, and Alaska and the Pacific Coastal and Columbia River tribes (all hereafter referred to as the PCSRF grantees), receive Congressional PCSRF appropriations from the National Marine Fisheries Service (NOAA Fisheries). Each state has a competitive process for distributing funds based on priorities and criteria set forth in agreements between the grantees and NOAA Fisheries. Funds are used for salmon recovery and conservation projects carried out by local governments, tribes, state agencies, public partners, watershed councils, soil and water conservation districts, and other organizations and entities. The PCSRF resources are used to leverage additional state and local funds and volunteer participation from local and private sources. The PCSRF is one component of many activities and projects that have been initiated to recover Pacific salmon and steelhead listed under the Endangered Species Act (ESA).

### ***PCSRF Program Goals***

In response to Congressional direction, NOAA Fisheries has worked with the PCSRF grantees over the last three years to define performance indicators for PCSRF goals for which progress can be measured. The major goals against which PCSRF performance can be measured are:

- (1) Address major habitat limiting factors for ESA-listed salmon and steelhead;
- (2) Improve management practices to maintain healthy salmon populations and prevent depletion of ESA-listed salmon;
- (3) Enhance the availability and quantity of habitat;
- (4) Improve the status of ESA-listed salmon; and
- (5) Ensure overall sustainability of naturally-spawning Pacific salmon.

PCSRF performance goals represent long-term desired outcomes for the program and are intrinsically linked to NOAA Fisheries overall core mission goal to protect, restore, and manage the use of coastal and ocean resources through ecosystem approaches to management. The development of a performance management system to measure progress towards these goals is presented in the remainder of this report in the following order:

*Section 2—PCSRF Relationship to other Activities*

*Section 3—PCSRF Performance Measurement Framework*

*Section 4—Region-wide Input Measures*

*Section 5—Region-wide Output Measures*

*Section 6—Region-wide Outcome Measures*

*Section 7—Region-wide Efficiency Measures*

*Section 8—Recovery Domain Level Reporting*

*Section 9—Summary*

## 2. PCSRF RELATIONSHIP TO OTHER ACTIVITIES

PCSRF directly supports the objectives of the National Oceanic and Atmospheric Administration (NOAA) Strategic Plan by addressing the challenges of protecting listed species, sustaining fish populations, and improving habitat. The PCSRF program goals support the outcomes identified for the Ecosystems Mission Goal of the NOAA Strategic Plan. The relationship between PCSRF goals and NOAA Strategic Planning is displayed in Figure 1.

**Figure 1: PCSRF Goals and NOAA Strategic Planning**

| PCSRF Goals  | NOAA Strategic Planning Objectives  | <b>NOAA Strategic Planning Outcomes</b> <ul style="list-style-type: none"> <li>• Healthy and productive coastal and marine ecosystems that benefit society</li> <li>• A well-informed public that acts as a steward of coastal and marine ecosystems</li> </ul> |
|--|---|---|
| Long Term (>15 years)<br>Overall sustainability of Pacific salmon  | <ul style="list-style-type: none"> <li>○ Increase number of fish stocks managed at sustainable levels</li> <li>○ Increase number of protected species that reach stable or increasing population levels</li> </ul>  |   |
| Mid-Term (5-15 years) <ul style="list-style-type: none"> <li>• Improved status of ESA-listed salmon (naturally spawning)</li> <li>• Maintained healthy salmon populations</li> </ul> | <ul style="list-style-type: none"> <li>○ Increase number of fish stocks managed at sustainable levels</li> <li>○ Increase number of protected species that reach stable or increasing population levels</li> </ul>  |   |
| Short-Term (<5 years) <ul style="list-style-type: none"> <li>• Enhanced habitat</li> <li>• Improved management practices</li> <li>• Limiting habitat factors addressed</li> </ul>    | <ul style="list-style-type: none"> <li>○ Increase number of regional, coastal and marine ecosystems delineated with approved indicators of ecological health and socioeconomic benefits that are monitored and understood</li> <li>○ Increase number of habitat acres conserved or restored</li> <li>○ Increase portion of population that is knowledgeable of and acting as stewards for coastal and marine ecosystems issues</li> <li>○ Increase number of coastal communities incorporating ecosystem and sustainable development principles into planning and management</li> </ul> |   |

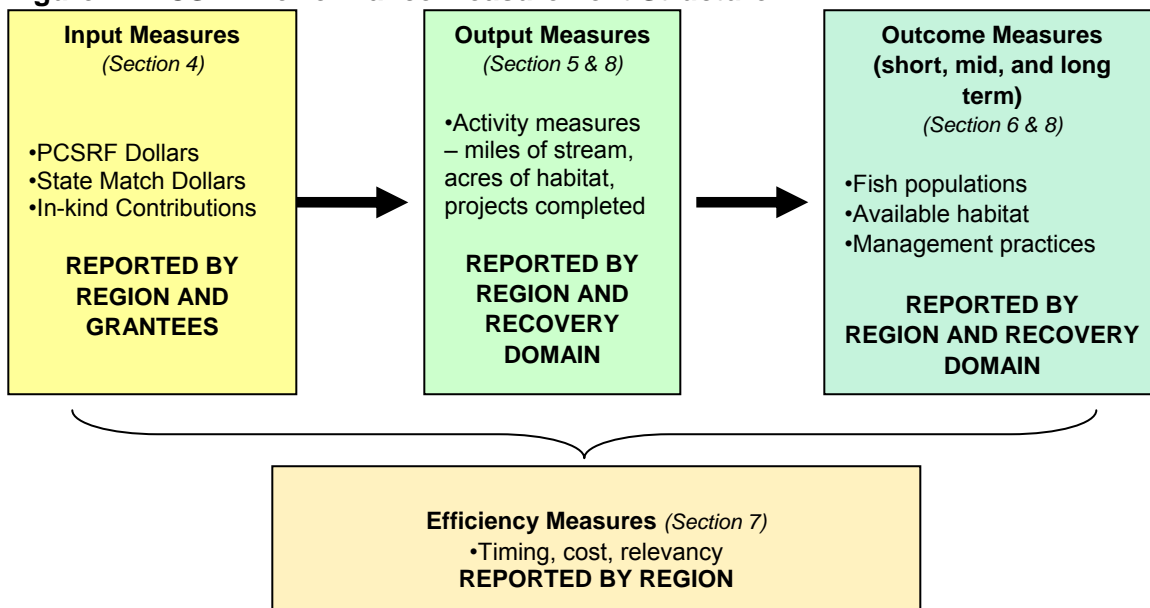
In addition to aligning with NOAA Strategic Planning Goals, PCSRF has worked to ensure its performance goals, measures, indicators, and reporting structure are consistent with performance measurement guidelines used by the Office of Management and Budget (OMB). As part of program accountability efforts, OMB conducts performance and management assessments to ensure wise investments of federal resources to achieve specific outcomes. PCSRF grantees and NOAA Fisheries have worked together to assure a performance measurement structure capable of demonstrating program results.

## 3. PCSRF PERFORMANCE MEASUREMENT FRAMEWORK

Over the last several years, PCSRF grantees and NOAA Fisheries have developed a performance reporting framework that recognizes the challenges of addressing the goals identified above and

provides an on-going, evolving mechanism to track progress. The basic structure of the framework is graphically depicted in Figure 2 below. This structure recognizes that it is possible to measure many indicators representing inputs (e.g., funding, in-kind contributions), outputs (e.g., number of projects, acres improved), outcomes (e.g., fish populations), and efficiency (e.g. project timing and funding priorities). PCSRF is tracking performance at two different spatial scales – region-wide and by recovery domain/restoration area. A recovery domain or restoration area is a geographic area that contains specific ESA-listed (or previously listed) salmon or steelhead. There are six recovery domains encompassing 16 Evolutionarily Significant Units (ESU) for salmon and 10 Distinct Population Segments (DPS) for steelhead, and one restoration area with one previously listed salmon ESU. The next several pages describe this performance framework in more detail.

**Figure 2: PCSRF Performance Measurement Structure**



Efforts initiated in 2003 to track performance focused primarily on better accounting for funded projects, e.g., number and types of projects, types and locations of restoration activities, levels of funding. This approach was practical due to lack of data on any performance indicators in the initial years of PCSRF. A description of the initial reporting framework can be found at: [http://webapps.nwfsc.noaa.gov/pcsrDoc/PCSRF\\_Performance\\_Measures.pdf](http://webapps.nwfsc.noaa.gov/pcsrDoc/PCSRF_Performance_Measures.pdf). The report generated from collection of these measures is also available on the Web at: [http://webapps.nwfsc.noaa.gov/pcsrDoc/2004\\_PCSRF\\_Report.pdf](http://webapps.nwfsc.noaa.gov/pcsrDoc/2004_PCSRF_Report.pdf).

Over time, performance indicators have been identified that focus on reporting outcomes and PCSRF grantees have begun to implement monitoring and evaluation programs to track progress in achieving those results. The 2005 PCSRF Report to Congress demonstrated the progress made in establishing a framework to organize and report data oriented toward outputs and outcomes, rather than simply inputs. This report is available at: <http://webapps.nwfsc.noaa.gov/pcsrDoc/Full-Report-final-08-08-05.pdf>.

Included herein is the 2006 performance measurement framework, focusing more specifically on output, outcome, and efficiency measures. Figure 3 provides an overall depiction of the components

within the framework discussed in more detail in the following sections. The identification of major limiting factors for all recovery domains occupied by ESA-listed species has improved the ability to track outputs and outcomes. The limiting factors were identified from completion of planning and watershed assessments and scientific information from Technical Review Teams (TRTs). This improved knowledge allows grantees to more effectively allocate PCSRF resources toward those limiting factors falling within the purview of PCSRF (e.g., habitat factors). Annual results and possible future iterations of this framework as it evolves over time will be posted on the internet at: <http://www.nwr.noaa.gov/Salmon-Recovery-Planning/PCSRF/index.cfm>.

**Figure 3: PCSRF Performance Measurement Framework**

| Inputs  | Reporting Categories   | Outputs  | PCSRF Goals (Outcomes)  |  |  |
|---|--|--|---|--|--|
|   |  |  | Short-term (< 5 years)  | Mid-term (5-15 years)  | Long-term (>15 years)                    |
| PCSRF funding to state and tribal governments through grants and contracts<br><br>State direct match resources<br><br>State, tribal, and other indirect contributions | <ul style="list-style-type: none"> <li>• Habitat Restoration</li> <li>• Habitat Protection</li> <li>• Habitat Access</li> <li>• Water Quality</li> <li>• Water Quantity</li> <li>• Hatcheries / Enhancement</li> <li>• Harvest Management</li> <li>• Watershed/Species Planning and Assessment</li> <li>• Recovery Plan and Development and Implementation</li> <li>• Research, Monitoring and Evaluation</li> <li>• Outreach, Education and Technical Assistance</li> </ul> | <ul style="list-style-type: none"> <li>• Instream habitat projects completed</li> <li>• Wetland habitat projects completed</li> <li>• Estuarine habitat projects completed</li> <li>• Land acquisition projects completed</li> <li>• Riparian habitat projects completed</li> <li>• Upland habitat projects completed</li> <li>• Fish passage projects completed</li> <li>• Hatchery fish enhancement projects completed</li> <li>• Watershed planning and assessment completed</li> <li>• Research, monitoring, and evaluation conducted</li> </ul> | Enhanced availability and quality of habitat<br><br>Improved management practices<br><br>Major Habitat Limiting Factors addressed for ESA-listed salmon | Improved status of ESA-listed salmon (naturally spawning populations increased)<br><br>Maintained healthy salmon populations | Overall sustainability of Pacific salmon |

#### 4. REGION-WIDE INPUT INDICATORS

Region-wide inputs are the funds and contributions committed to PCSRF activities and projects (Figure 4). These inputs include federal appropriations, state match of federal funds, and other in-kind contributions from states and tribes. The inputs support the activities (outputs) in the categories identified in the second column of Figure 3 (e.g., habitat restoration, habitat protection).

**Figure 4: Region-wide Inputs used to track PCSRF performance**

| Input  | Performance Indicator                        |
|--|--|
| Federal funding to state and tribal governments through grants and contracts | Amount of federal funding                    |
| State direct match resources   | Amount of direct match                       |
| State, tribal, and other indirect contributions                              | Amount of indirect and in-kind contributions |

#### 5. REGION-WIDE OUTPUT INDICATORS

The region-wide outputs are the specific activities and projects undertaken with PCSRF resources to achieve the outcomes/goals. Outputs include all PCSRF activities undertaken by states and tribes. Specific indicators for each output are listed in Figure 5. The output indicators help quantify PCSRF performance related to projects and activities completed. The PCSRF program reports on progress towards achievement of these output level indicators annually through the PCSRF Report to Congress.

**Figure 5: Region-wide Outputs used to track PCSRF performance**

| Output  | Performance Indicator   |
|---|---|
| 1. Instream habitat projects                      | Stream miles treated  |
| 2. Wetland habitat projects                       | Wetland acres treated<br>Wetland acres created  |
| 3. Estuarine habitat projects                     | Estuarine acres treated<br>Estuarine acres created  |
| 4. Land acquisition projects                      | Number of acres acquired<br>Miles of streambank protected   |
| 5. Riparian habitat projects                      | Miles of riparian streambank treated  |
| 6. Upland habitat projects                        | Acres of upland habitat treated   |
| 7. Fish passage projects                          | Barriers/blockages removed<br>Miles of stream made accessible<br>Fish screens installed   |
| 8. Hatchery fish enhancement projects             | Numbers of salmon marked or produced  |
| 9. Watershed planning and assessment projects     | Number of watershed plans and assessments completed<br>Number of recovery or restoration plans completed  |
| 10. Research, monitoring, and evaluation projects | Percent of total PCSRF funds dedicated for effectiveness monitoring (10% goal)<br>Number of populations monitored<br>Number of sites monitored for habitat conditions |

## 6. REGION-WIDE OUTCOME INDICATORS

The region-wide outcomes are actual results from PCSRF activities that directly track whether goals are being achieved (e.g., salmon abundance, habitat quality). Outcomes under the framework are broken out by short-term (less than five years), mid-term (five to 15 years) and long-term (greater than 15 years) with performance goals for each (See Figure 6) The template for outcomes gives further detail on the short-term, mid-term, and long-term outcome indicators for the entire PCSRF program. Many of the indicators for the outcome measures require data external to PCSRF activities, to measure overall results, such as salmon abundance and habitat condition.

**Figure 6: Region-wide Outcome Measures to Track PCSRF Performance**

|                     | Outcomes (PCSRF Goals)  | Performance Indicator  |
|---------------------|---|--|
| Long-term Outcome   | Overall Sustainability of Pacific Salmon                        | Trends in abundance for ESA-listed salmon and steelhead  |
| Mid-term Outcome    | Improved Status of ESA-Listed Salmon*                           | Trends in abundance for non-ESA-listed salmon and steelhead  |
|                     | Prevent Depletion and Maintain Healthy Salmon Populations       |  |
| Short-term Outcomes | Enhanced Availability and Quality of Habitat                    | Trends in quality and amount of habitat available for salmon.  |
|                     | Improved Management Practices                                   | Number of activities incorporating information from assessments (habitat, limiting factors, harvest, monitoring, etc.)<br>Number of recovery plans |
|                     | Major Habitat Limiting Factors Addressed for ESA-Listed Salmon* | Percent of output activities addressing habitat limiting factors across the region   |

\* Applicable only in areas with ESA-listed species

## 7. REGION-WIDE EFFICIENCY INDICATORS

While outcome measures provide a means to assess progress toward program goals, efficiency measures provide a means to assess how well the program is performing in terms of efficient and effective use of resources. Efficiency measures are intended to improve program performance. The salmon lifecycle is complex and the variables affecting recovery and survival are many. Meaningful efficiency measures will take this complexity into consideration, along with external realities such as construction windows, ocean conditions, and the fact that recovery involves the actions of many people, whose behavior is not always easy to change. The efficiency measures outlined in Figure 7

are intended to ensure wise use of PCSRF resources in areas where improvements are most needed and appropriate under PCSRF (e.g., habitat limiting factors).

**Figure 7: Region-wide Efficiency Indicators**

| Efficiency Goal   | Performance Indicator   |
|---|---|
| Projects are completed within the proposed project timeframe                                  | Number of projects completed within proposed project timeframe  |
| Projects are completed within a 10 percent variance in proposed project costs                 | Number of projects completed within a 10% variance of proposed costs  |
| Projects address a major habitat factor limiting recovery of ESA listed salmon and steelhead* | Percent of program resources expended on projects that address habitat factors limiting recovery of ESA listed Pacific salmon or used to evaluate the effectiveness of efforts to address habitat limiting factors. |

\* Applicable only in areas with ESA-listed species

## 8. RECOVERY DOMAIN LEVEL REPORTING

Salmon ESUs and steelhead DPSs are grouped into recovery domains that represent geographic areas that allow for an ecosystem approach to identifying recovery needs and actions. In each recovery domain, output measures have been identified relative to the limiting factors in the domains. Each of the following recovery domains and restoration area templates (Figures 8 – 14) lists a specific set of major habitat factors inhibiting recovery for the ESA-listed salmon and steelhead in the domain. The limiting factors are categorized by the program categories of habitat, water quality, water quantity and access (to needed habitat). The PCSRF database currently only reports ‘outputs’, specifically the number of projects that address habitat limiting factors and the metrics associated with that project (e.g., miles of stream restored). As comprehensive baseline monitoring and evaluation programs develop and report findings, the outcomes of restoration efforts will be reported. Potential indicators are identified in the following tables as a step toward measuring outcomes. Many of these will require large-scale data collection efforts that currently exceed the available PCSRF resources. The previously discussed region-wide output measures in Table 5 can also be examined at the recovery domain level.

**Figure 8: Puget Sound Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor</b>  | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)  | <b>Potential Indicator</b><br>(from other data sources)  |
|-------------------------|---|---|--|
| <b>Habitat</b>          | Degraded floodplain and in-river channel structure (ESUs: 1,3)                  | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Wetland habitat projects</li> </ul>                                     | Trends in stream depth – width:depth ratio   |
|                         | Riparian area degradation and loss of in-river large woody debris (ESUs: 1,2,3) | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> <li>• Instream habitat projects</li> </ul>                                    | Trends in land use conversion – change in land use land cover classification (e.g. forest to urban). Large woody debris          |
|                         | Degraded tributaries / river habitat conditions (ESU: 2)                        | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul>                                    | Trends in land use conversion<br><br>Trends in transportation impacts – Miles of road and crossings within one mile of watershed |
|                         | Degraded estuarine conditions and loss of estuarine habitat (ESUs: 1,3)         | <ul style="list-style-type: none"> <li>• Estuarine habitat projects</li> </ul>  | Trends in riparian vegetation and canopy cover (Land use conversion)   |
|                         | Excessive sediment in spawning gravels (ESU: 1, 2,3)                            | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Upland habitat projects</li> </ul> | Trends in water turbidity<br>Trends in soil erosion – amount eroded(stream depth)  |
| <b>Water Quality</b>    | Degraded water quality (ESU: 1)   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Upland habitat projects</li> </ul>                                      | Trends in impervious surface   |
|                         | High water temperature (ESU: 1)   | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>   | Trends in riparian vegetation and canopy cover<br><br>Trends in water temperature  |
| <b>Water Quantity</b>   | Reduced streamflow in migration areas (ESU: 3)                                  | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | Trends in instream flow<br><br>Trends in flow hydrology  |

1=Puget Sound Chinook ESU 2=Ozette Lake Sockeye ESU 3=Hood Canal Summer Chum ESU



**Figure 9: Willamette/Lower Columbia Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor</b>  | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)   | <b>Potential Indicator</b><br>(from other data sources)   |
|-------------------------|---|--|---|
| <b>Habitat</b>          | Altered channel form and stability in tributaries<br>(ESUs: 1,3,4)                  | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Wetland habitat projects</li> </ul> | <p>Trends in stream depth – width:depth ratio</p> <p>Trends in land use conversion – change in land use land cover classification (e.g., forest to urban)</p> |
|                         | Loss/ degraded floodplain connectivity and lowland stream habitat<br>(ESU/DPS: 2,5) | <ul style="list-style-type: none"> <li>• Wetland projects</li> </ul>   | <p>Trends in land use conversion</p> <p>Trends in transportation impacts – Miles of road and crossings within the watershed</p>                               |
|                         | Loss of tributary habitat diversity<br>(ESU/DPS: 1,3)                               | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>  | <p>Trends in riparian vegetation and canopy cover<br/>(Land use conversion)</p>   |
|                         | Excessive sediment in tributaries<br>(ESU/DPS: 1,3,4)                               | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Upland habitat projects</li> </ul>  | <p>Trends in water turbidity</p> <p>Trends in soil erosion – amount eroded(stream depth)</p>  |
| <b>Water Quality</b>    | Altered water quality<br>(ESU/DPS: 2,5)   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Upland habitat projects</li> </ul>                                       | <p>Trends in impervious surface</p>   |
|                         | High water temperature<br>(ESU/DPS: 2,3,4,5)  | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>  | <p>Trends in riparian vegetation and canopy cover</p> <p>Trends in water temperature</p>  |
| <b>Water Quantity</b>   | Altered streamflow in tributaries<br>(ESU/DPS: 1,2,4,5)                             | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>  | <p>Trends in instream flow</p> <p>Trends in flow hydrology</p>  |
| <b>Habitat Access</b>   | Reduced access to spawning/rearing habitat in tributaries<br>(ESU/DPS: 2,3,4,5)     | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>  | <p>Miles of newly inhabited spawning grounds</p>  |

1=Columbia River Chum ESU 2=Upper Willamette River Chinook ESU 3=Lower Columbia River Chinook ESU  
4=Lower Columbia River Steelhead DPS 5=Upper Willamette River Steelhead DPS

**Figure 10: Interior Columbia Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor</b>   | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)  | <b>Potential Indicator</b><br>(from other data sources)  |
|-------------------------|--|---|--|
| <b>Habitat</b>          | Altered channel morphology and floodplain<br>(ESU/DPS: 1,3,4,5,6,7)                      | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Wetland habitat projects</li> </ul>                                     | Trends in stream depth – width:depth ratio   |
|                         | Tributary riparian degradation and loss of in-river large woody debris<br>(ESU/DPS: 3,7) | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> <li>• Instream habitat projects</li> </ul>                                    | Trends in land use conversion – change in land use land cover classification (e.g. forest to urban).<br>Large woody debris |
|                         | Excessive sediment<br>(ESU/DPS: 1,5,6,7)   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Upland habitat projects</li> </ul> | Trends in water turbidity<br>Trends in soil erosion – amount eroded (stream depth)   |
|                         | Reduced spawning/rearing habitat<br>(ESU: 2)   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | Trends in land use conversion  |
| <b>Water Quality</b>    | Degraded water quality<br>(ESU/DPS: 1,2,5,6,7)   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | Trends in impervious surface   |
| <b>Water Quantity</b>   | Reduced streamflow in tributaries<br>(ESU/DPS: 1,3,4,5,6,7)                              | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | Trends in instream flow<br>Trends in flow hydrology  |
| <b>Habitat Access</b>   | Impaired passage in tributaries<br>(ESU/DPS: 1,3,4)                                      | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>   | Miles of newly inhabited spawning grounds  |

1 = Middle Columbia River Steelhead DPS   2 = Snake River Fall Chinook ESU  
3 = Upper Columbia River Spring Chinook ESU   4 = Snake River Sockeye ESU  
5 = Snake River Spring/Summer Chinook ESU   6 = Snake River Steelhead DPS  
7 = Upper Columbia River Steelhead DPS

**Figure 11: Oregon Coast Coho Restoration Area**

| <b>Program Category</b> | <b>Major Habitat Factor*</b>             | <b>PCSRF Activities Addressing Major Habitat Factors</b><br>(from PCSRF database)   | <b>Potential Indicator</b><br>(from other data sources)   |
|-------------------------|--|---|---|
| <b>Habitat</b>          | Altered stream morphology and complexity | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Wetland habitat projects</li> </ul>                                     | Trends in stream depth – width:depth ratio  |
|                         | Reduced habitat capacity                 | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul>                                    | Trends in riparian vegetation and canopy cover<br><br>Trends in land use conversion – change in land use land cover classification (e.g., forest to urban). |
|                         | Loss of over-wintering habitat           | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul>                                    | Trends in land use conversion   |
|                         | Excessive sediment                       | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Upland habitat projects</li> </ul> | Trends in water turbidity<br><br>Trends in soil erosion – amount eroded(stream depth)   |
| <b>Water Quality</b>    | High water temperature                   | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>   | Trends in riparian vegetation and canopy cover<br><br>Trends in water temperature   |

\*All habitat factors listed above are associated with Oregon Coast Coho ESU.

**Figure 12: Southern Oregon/Northern California Coast Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor*</b>    | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)  | <b>Potential Indicator</b><br>(from other data sources)   |
|-------------------------|--|---|---|
| <b>Habitat</b>          | Loss of channel complexity               | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul>                                    | <p>Trends in stream depth – width:depth ratio</p> <p>Trends in land use conversion – change in land use land cover classification (e.g. forest to urban).</p> |
|                         | Loss of estuarine and floodplain habitat | <ul style="list-style-type: none"> <li>• Estuarine habitat projects</li> <li>• Wetland habitat projects</li> </ul>                                    | <p>Trends in land use conversion</p> <p>Trends in transportation impacts – Miles of road and crossing within one mile of watershed</p>                        |
|                         | Loss of riparian habitat                 | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>   | <p>Trends in riparian vegetation and canopy cover<br/>(Transportation impacts)<br/>(Land use conversion)</p>  |
|                         | Loss of in-river wood                    | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | Large woody debris  |
|                         | Excessive sediment in tributaries        | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> <li>• Upland habitat projects</li> </ul> | <p>Trends in water turbidity</p> <p>Trends in soil erosion – amount eroded(stream depth)</p>  |
| <b>Water Quality</b>    | Degraded water quality                   | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Upland habitat projects</li> </ul>                                      | Trends in impervious surface  |
|                         | High water temperature                   | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>   | <p>Trends in riparian vegetation and canopy cover</p> <p>Trends in water temperature</p>  |
| <b>Water Quantity</b>   | Reduced streamflow                       | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>   | <p>Trends in instream flow</p> <p>Trends in flow hydrology</p>  |
| <b>Habitat Access</b>   | Unscreened water diversions              | <ul style="list-style-type: none"> <li>• Fish screening projects</li> </ul>   | Juvenile migration counts   |
|                         | Structures blocking fish passage         | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>   | Miles of newly inhabited spawning grounds   |

\*All limiting factors listed above are associated with Southern Oregon / Northern California Coast Coho ESU

**Figure 13: North-Central California Coast Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor</b>                                 | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)  | <b>Potential Indicator</b><br>(from other data sources)   |
|-------------------------|--|---|---|
| <b>Habitat</b>          | Loss of channel complexity<br>(ESU/DPS: 1,2,3,4)                     | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Wetland habitat projects</li> </ul>                                       | Trends in stream depth – width:depth ratio  |
|                         | Urbanization<br>(ESU/DPS: 3,4)                                       | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> <li>• Instream habitat projects</li> </ul>                                      | Trends in land use conversion – change in land use, land cover classification (e.g. forest to urban).<br>Large woody debris |
|                         | Excessive sediment<br>(ESU/DPS: 1,2,3,4)                             | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul>                                      | Trends in water turbidity<br>Trends in soil erosion – amount eroded(Stream depth)   |
|                         | Loss of floodplain and estuarine habitats<br>(ESU/DPS: 1,2,3,4)      | <ul style="list-style-type: none"> <li>• Land acquisition projects</li> <li>• Estuarine habitat projects</li> <li>• Wetland habitat projects</li> </ul> | Trends in land use conversion   |
|                         | Loss of riparian habitat<br>(ESU/DPS: 1,2,3,4)                       | <ul style="list-style-type: none"> <li>• Riparian habitat projects</li> </ul>   | Trends in land use conversion   |
| <b>Water Quality</b>    | Degraded water quality<br>(ESU/DPS: 1,2,3,4)                         | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Upland habitat projects</li> </ul>  | Trends in impervious surface  |
| <b>Habitat Access</b>   | Reduced access to spawning and rearing habitat<br>(ESU/DPS: 1,2,3,4) | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>   | Miles of newly inhabited spawning grounds   |
|                         | Unscreened water diversions<br>(ESU/DPS: 1,2,3,4)                    | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>   | Trends in unscreened water diversions that are screened   |

1 = Northern California Steelhead DPS   2 = California Coast Chinook ESU  
3 = Central California Coast Coho ESU   4 = Central California Coast Steelhead DPS

**Figure 14: South Central/Southern California Coast Recovery Domain**

| <b>Program Category</b> | <b>Major Habitat Limiting Factor*</b>                       | <b>PCSRF Activities Addressing Major Habitat Limiting Factors</b><br>(from PCSRF database)                         | <b>Potential Indicator</b><br>(from other data sources)                           |
|-------------------------|---|--|---|
| <b>Habitat</b>          | Alteration of floodplains and channels<br>(DPS: 1,2)        | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Wetland habitat projects</li> </ul>  | Trends in stream depth – width:depth ratio  |
|                         | Sedimentation of spawning and rearing habitat<br>(DPS: 1,2) | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Riparian habitat projects</li> </ul> | Trends in water turbidity<br>Trends in soil erosion – amount eroded(stream depth) |
|                         | Loss of Estuarine Habitat<br>(DPS: 1,2)                     | <ul style="list-style-type: none"> <li>• Estuarine habitat projects</li> </ul>                                     | Trends in land use conversion   |
| <b>Water Quality</b>    | Degraded water quality<br>(DPS: 1)                          | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> <li>• Upland habitat projects</li> </ul>   | Trends in impervious surface  |
| <b>Water Quantity</b>   | Alteration of natural stream flow patterns<br>(DPS: 1,2)    | <ul style="list-style-type: none"> <li>• Instream habitat projects</li> </ul>                                      | Trends in instream flow<br>Trends in flow hydrology                               |
| <b>Habitat Access</b>   | Physical impediments to fish passage<br>(DPS: 1,2)          | <ul style="list-style-type: none"> <li>• Fish passage projects</li> </ul>  | Miles of newly inhabited spawning grounds   |

1 = South-Central California Coast Steelhead DPS 2 = Southern California Coast Steelhead DPS

## 9. SUMMARY

### *Reporting on Progress*

The need for performance indicators for PCSRF was first identified in December 2002. NOAA Fisheries and the PCSRF grantees worked together to develop a set of performance goals and measures that would allow for program evaluation and provide a framework within which to assess progress in achieving intended results. PCSRF performance is reported in multiple ways, including:

- Annual Report to Congress (available online and hard copy)
- Structured OMB performance reports (available online)
- Direct public access through the PCSRF Website and database for summary reports of performance metrics (available online and updated quarterly)

*(See Section 3 above for links to online versions of these referenced reports.)*

Performance targets (improved levels of performance needed to achieve the stated goals) and baseline information (the starting point from which gains are measured) are reviewed and updated annually based

on program funding, progress, and shifts in program priorities. Baseline and target information will be posted annually at: <http://www.nwr.noaa.gov/Salmon-Recovery-Planning/PCSRF/index.cfm> based on the enacted appropriation level and the development of the Report to Congress. Current targets are included in the 2005 Report to Congress.

“Real-time” performance evaluations can be conducted through the ad hoc query functions on the PCSRF database. The project information is updated quarterly. As the PCSRF performance reporting continues to evolve and be refined, the PCSRF Website may be updated to provide access to other databases for landscape level metrics that show improvements in habitat and/or increases in salmon abundance. The PCSRF augments these other data sources through development of high quality indicators and a comprehensive monitoring and evaluation approach to collecting such data without sacrificing PCSRF funds needed for on-the-ground restoration projects. Ten percent of PCSRF funds are dedicated to these monitoring and evaluation efforts

### *Next Steps*

In its Report to Congress for 2004, NOAA Fisheries was able to report region-wide activities for the first time. As performance goals and measures were refined in the process of understanding the needs of salmon and the factors affecting recovery, the 2005 Report to Congress began to link PCSRF activities in individual recovery domains or restoration areas with the major factors limiting recovery.

Salmon have complex lifecycles and in many cases little is known about individual populations. Salmon restoration and conservation requires that the multiple factors affecting self-sustaining populations be addressed simultaneously. The complexity and inter-connectivity mean that tracking individual projects is only one component of understanding progress toward salmon recovery. Taking into consideration these constraints and complexity, NOAA Fisheries has established program goals and initiated project-level reporting within a framework that supports data integration. As a result, data are increasingly available for measuring progress toward specific PCSRF performance goals.

The development of performance measures and a reporting framework is an iterative process that will continue to evolve as data are made available and knowledge is gained from the identified indicators to contribute to a cumulative understanding of outcomes and program effectiveness. NOAA Fisheries and its PCSRF grantees are committed to further development and refinement of this Performance Reporting Framework.